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# CANADIAN PATENT

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FLOOR MOP WITH BRUSH ATTACHMENT

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No. OF CLAIMS 1

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This invention relates to floor mops, and more particularly to a floor mop incorporating a brush attachment adapted to remove from floor surfaces dirt and like litter adhering to such surfaces.

The conventional floor mops used by janitors and floor cleaners in removing litter from floor surfaces of public buildings and the like are generally elongated to enable the floor cleaner to clear a wide tract as he walks pushing the mop ahead. Most litter is loose and, therefore, is gathered ahead of the mop as it is moved over the floor. However conventional mops used in this manner generally pass over particles that  
10 have adhered to or become stuck to the floor, such as candy, scuff marks, wet cigarette butts that have been trodden upon, mud brought onto the floor from outside on wet days which has subsequently dried in the generally warmer interior atmosphere found in buildings of this type, and so on. Such litter is generally passed over by conventional mops and subsequently must be removed by brushes having suitably hard bristles upon which relatively more pressure can be brought to bear by the cleaner during sweeping strokes than is generally possible using the wide soft conventional mop.

Attempts have been made in the past to provide a dual purpose  
20 mop and brush cleaning device which may be interchanged from the one type to the other by very complicated means. It has been found that devices so far provided are furthermore generally not sufficiently wide to cover the floor areas of public buildings in reasonable time. Such devices are generally of a design which departs considerably from the conventional wide industrial type mop generally favoured for relatively effective mopping and disinfecting capabilities.

An object of this invention, therefore, is to provide a mop suitable for removing both loose litter and litter adhering to floor surfaces.

30 Another object of this invention is to provide a brush, incorporating means for attachment, effectively loosening litter when used in conjunction with a mop similar to the conventional type industrial

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floor mops.

Another object of this invention is to provide an industrial type floor mop having a brush attachment actuatable upon manual operation of the handle thereof, thereby making it unnecessary for a janitor, floor cleaner or the like to interrupt the mopping and disinfecting of the floor surface while dislodging adhesive litter therefrom.

Still another object of this invention is to provide a brush  
40 integral with an industrial type mop which permits the mop to be folded for insertion into, and removal from the cloth mop portion without the removal of the brush attachment.

In drawings which illustrate embodiments of the invention,

Figure 1 is a perspective view of a preferred embodiment of this invention in the open operating position and having the cloth mop installed.

Figure 2 is a plan view of a cloth mop adapted for use with the preferred embodiment of this invention depicted in Figure 1.

Figure 3 is a sectional view taken along the line B-B of Figure  
50 1 during a normal mopping stroke with the brush attachment in the retracted position.

Figure 4 is a sectional view taken along the line B-B of Figure 1 with the handle in the normal operating position required to bring the brush attachment to the unseated position thus bringing the bristles thereof directly into brushing contact with the floor surface so that the brushing operation may take place.

Figure 5 is a sectional view taken along the line B-B of Figure 1 with the handle in the normal operating position required to bring the brush attachment to the retracted position so that the normal mopping  
60 operation may be resumed.

Referring to Figure 1, reference numeral 10 depicts generally my floor mop having a conventional type handle 11 perpendicularly mounted upon a tubular shaft 12 in a bracket 13 and pivotable therein upon a roll pin 14 in the plane of tubular shaft 12 and handle 11. To the fore and rear

of bracket 13 are provided lever brackets 15 pivotable upon tubular shaft 12, and connected to one another by an angled strip forming a lever 16. Each lever bracket 15 is provided with a cut away flange 17 disposed in exteriorly opposing relationship, each cut away portion encompassing a pin 18 secured through tubular shaft 12 and adapted to engage lips 19 of flanges 17, upon rotation in a clockwise direction of tubular shaft 12, and upon rotation of tubular shaft 12 in an anticlockwise direction, to engage opposite lips 20 of flanges 17, thereby to turn lever brackets 15 in a clockwise or a counter-clockwise direction thereby also turning lever 16.

Lever brackets 15 are secured by means of rivets 35 to the upper surfaces of struts 21 and 21a, both afore-mentioned struts 21 and 21a being attached perpendicularly across frame member 23a on the upper side thereof towards handle 11. Exteriorly opposite axially aligned hinge pins 22a are attached to frame member 23a in such a manner so that the alignment of hinge pins 22a is along a line B-B formed by the intersection of a plane containing frame members 23 and 23a when mop 10 is in the open position as depicted in Figure 1 and another plane perpendicular to line A-A, containing roll pin 14. The alignment of hinge pins 22a permits frame members 23, (which is pivotably mounted by attached hinges 22 upon hinge pins 22a which are attached to frame member 23a) and frame member 23a to fold together in a direction away from handle 11 to thereby permit their insertion into pockets 26 provided in mop 27, depicted in Figure 2, which is folded along the center line C-C while frame members 23 and 23a are being inserted into pockets 26, the fitted mop thereupon being opened to the operating position for use as depicted in Figures 1, 3, 4, and 5.

A locking bar 29, limited to forward and backward movement along the line A-A by guides 42 attached to strut 28, and having its locking end 30 angled is resiliently urged into adapted end 31 of frame member 23a by spring 32 connecting locking bar 29 and strut 28, strut 28 being attached perpendicularly across frame member 23 on the lower side thereof away from handle 11, thereby to lock frame member 23a and maintain both frame

members 23 and 23a in an open operating position.

It is evident from the foregoing that upon the mop 10 being used in the manner depicted in Figure 4 wherein the bristles 39 of brush 37 are depressed into direct contact with floor surface 33 and cloth mop 27 thereby is raised above floor surface 33, that the weight of the two sides of mop 10 would cause frame members 23 and 23a to fold without the provision of the locking means above described, and thereby render less effective the cleaning action of the brush as hereinbelow described.

With reference to Figures 1 and 3, a rectangular spring strip brush holder 34, preferably of 24 or 25 gauge, is provided within frame member 23a, one end of which is secured to the lower side of strut 21a by means of rivets 41. The opposite end 36 of brush holder 34 is angled to an elevated position above strut 28. Secured to brush holder 34 is a nylon brush 37 having a flat back 38, against which lever 16 rests upon mop 10 being used in the manner as depicted in Figure 3. It should be noted that lever 16 is in an inclined relationship with the back 36 of brush 37 when handle 11 is in a plane perpendicular to a plane containing frame 23 and 23a, when mop 10 is in the open position and that the pivotal movement of handle 11 upon roll pin 14 in this perpendicular plane causes substantially no rotational movement of lever 16 upon tubular shaft 12. In the position of handle 11 as depicted in Figure 3 brush 37 is in a retracted position within cloth mop 27, bristles 39 being raised above floor surface 33 in the position required for removing loose litter from the floor surface. Upon handle 11 being tilted to the right however, as depicted in Figure 4, lever 16 is pivoted upon pivot bosses 43 incorporated in cut away flanges 17 of lever brackets 15 in a clockwise direction, thereby bearing against back 38 of brush 37 and depressing brush 37 into the unseated position wherein bristles 39 are brought into direct contact with the floor surface 33. It is evident that the relatively greater concentration of pressure upon the floor surface 33 of bristles 39 than of tufts 40 in the mopping position depicted in Figure 4 causes the relatively more effective dislodging of adhering

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130 particles of litter therefrom when the combination mop is used in this alternative position of brush 37. Therefore, upon the floor cleaner encountering stubborn particles of litter while mopping, he has simply to tilt handle 11 to the right and sweep over the area with brush 37 until the adhering litter is dislodged therefrom.

It should be noted in Figure 2 that cloth mop 27 is cut away in the center portion to admit centrally disposed nylon brush 37. In other respects cloth mop 27 is conventional, and may be impregnated with chemical cleaner or disinfectant as desired. Its easy installation on and removal from frame members 23 and 23a makes changing cloth mop 27 as speedy as changing conventional mops.

140 To remove cloth mop 27 locking bar 29 is released from frame member 23a by moving locking bar 29 in a backward direction along line A-A as depicted in Figure 1, and folding frame members 23 and 23a away from handle 11. Used cloth mop 27 may then be slipped off, and a fresh one installed whereupon the mop is reopened to the operating position as previously described.

The general design of the individual parts of my invention as explained above may be varied according to the requirements of manufacture and production thereof, while still remaining within the spirit and principle of this invention, without prejudicing the novelty thereof.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A combination floor mop comprising a rectangular elongated frame bisected centrally of its elongate configuration to form a first and second half pivotably connected together by a pair of hinge pins secured on the opposite exterior sides of said second frame half, said hinge pins being axially aligned with said bisecting above of said rectangular elongated frame, one end of said second frame half being detachably attached to a locking bar, said locking bar being secured by guides and spring means to a first cross strut secured to said first half of said frame, lever brackets secured by means of rivets to a second and third cross strut, both said second and third cross struts being secured to said second frame half, said lever brackets pivotable upon a tubular shaft, a handle connected to said tubular shaft by universal joint means, a lever rotatably mounted substantially centrally upon pivot bosses, which are an integral part of said lever brackets, said lever extending downwardly in the general direction of the plane of said frame halves, said lever being actuatable upon tilting said handle from a vertical position, to a substantially horizontal position, a centrally disposed brush holder secured at one end to said third cross strut within said second frame half resiliently biasing an attached brush in a retracted position upwardly against said lever, a cloth mop, having a central cut away portion slightly greater in area than the cross-sectional area of said brush, fitting over said rectangular elongated frame, said brush having relatively stiff bristles suitable for dislodging litter adhering to floor surfaces upon moving said brush over a floor surface, the plane of said bristles being maintained above a floor surface within said cut away portion of said mop in said retracted position, said brush being depressed by said lever upon tilting said handle so that said bristles are urged into direct contact with said floor surface, thereby to dislodge adhering litter during use of the mop, said brush being returned to the retracted position upon tilting said handle again, in an opposite direction

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to said first tilting movement thus releasing said lever against said brush  
so that the normal mopping operation may continue with said combination  
floor mop.

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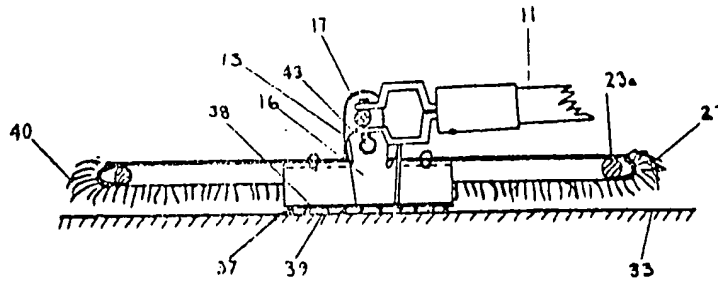


Fig. 4.

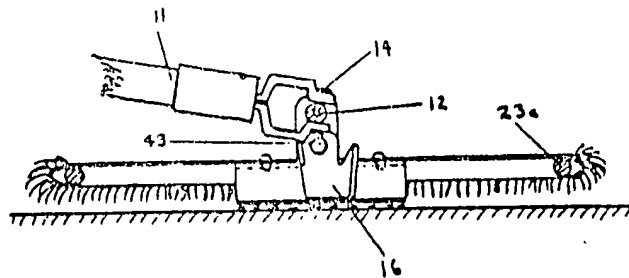


Fig. 5.

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FLOOR MOP WITH BRUSH ATTACHMENT

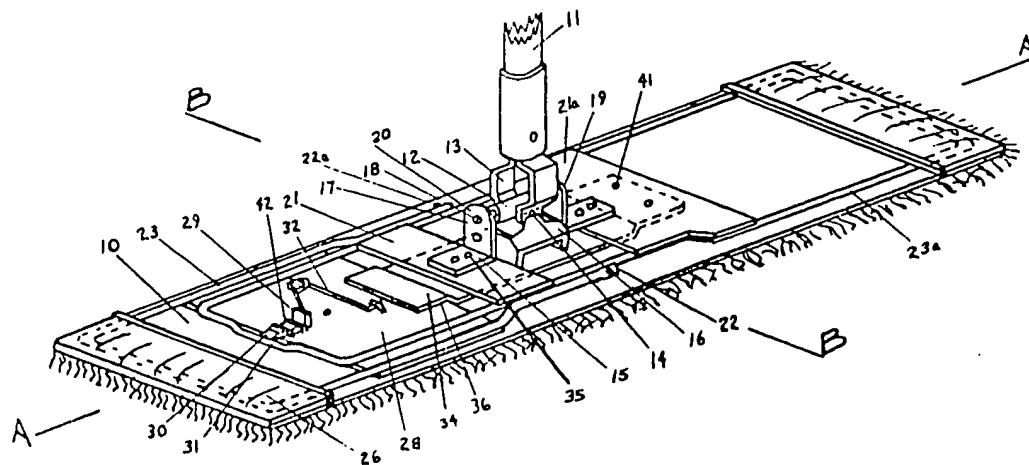


Fig 1.

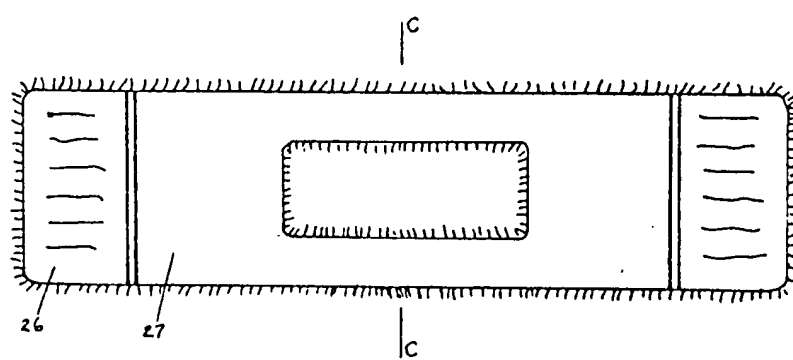


Fig 2.

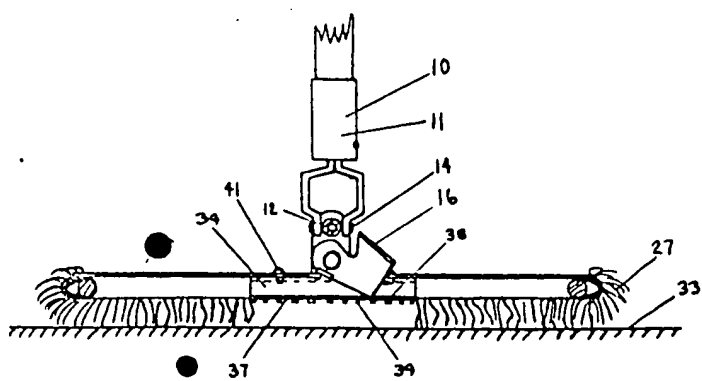


Fig 3.